

In re Application of Batlaw et al.
Application No. 10/764,234

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AMENDMENTS TO THE CLAIMS

APR 08 2008

1-52. (Canceled)

53. (Withdrawn) A process comprising the steps of:

- (a) providing a chemical composition comprising polypropylene, said chemical composition having an MFI in the range of between about 13 and about 35 grams/10 minutes, according to ASTM D 1238, said chemical composition further comprising a nucleating agent, said nucleating agent comprising at least in part 1,3-O-2,4-bis(3,4-dimethylbenzylidene) sorbitol (DMDBS) or derivatives thereof;
- (b) injecting said chemical composition into a mold at a fill rate of between about 5 and about 22 grams of chemical composition per second;
- (c) forming said chemical composition into a preform article, said preform article having a side wall thickness of between about 2 mm and about 4 mm; and
- (d) removing said preform article from said mold.

54. (Withdrawn) A preform article formed according to the process of claim 53.

55. (Withdrawn) The process of claim 53 wherein further comprising the steps of:

- (e) reheating said preform article; and
- (f) stretch blow molding said preform article to form a container.

56. (Currently Amended) In a two stage process of injection stretch blow molding polypropylene, the process comprising the steps of:

- (a) providing a chemical composition comprising polypropylene and a nucleating agent, said chemical composition having a melt flow index in the range of between about 13 and about 50 grams/10 minutes according to ASTM D 1238, and said nucleating agent being selected from the group consisting of dibenzylidene sorbitols compounds;
- (b) injecting said chemical composition into a mold through a gate in operable connection with said mold, wherein said gate has a diameter of from about 1.5 mm to about 3.8 mm and said chemical composition is injected into said mold at

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a fill rate of ~~greater than~~ about 5 to about 22 grams of chemical composition per second;

(c) forming said chemical composition into a preform article, said preform article having a closed end connected to a side wall, said preform side wall having a thickness ~~in the range of from about~~ from about ~~[[2-4]]~~ 1.5 mm to about 3.5 mm;

(d) removing said preform article from said mold and allowing said preform article to cool to ambient temperature;

(e) subsequently reheating said preform article to an elevated temperature; and

(f) placing the reheated preform article into a mold of a stretch blow mold apparatus and stretch blow molding said reheated preform article to form a container,

wherein said container has at least one side wall having a side wall thickness, wherein the percent haze to thickness ratio of said container side wall is less than about 0.4 percent haze/ mil.

57. (Canceled)

58. (Previously Presented) The process of claim 56 wherein said chemical composition comprises an ethylene/propylene copolymer.

59-60. (Canceled)

61. (Previously Presented) The process of claim 56 wherein said nucleating agent comprises sodium 1,3-O-2,4-bis(4-methylbenzylidene) sorbitol and derivatives thereof.

62. (Previously Presented) The process of claim 56 wherein said nucleating agent comprises a bis(3,4-dialkylbenzylidene) sorbitol acetal.

63. (Previously Presented) The process of claim 56 wherein said nucleating agent comprises 1,3-O-2,4-bis(3,4-dimethylbenzylidene) sorbitol.

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64. (Previously Presented) The process of claim 56 wherein said haze/thickness ratio of said container is less than about 0.3 percent haze/ mil.

65. (Previously Presented) The process of claim 56 wherein said haze/thickness ratio of said container is less than about 0.2 percent haze/ mil.

66. (Previously Presented) The process of claim 56 wherein said percent haze of said side wall of said container is less than about 6%.

67. (Previously Presented) The process of claim 66 wherein said container is about 10-20 mils in side wall thickness.

68. (Previously Presented) The process of claim 56 wherein said stretch blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of greater than about 900 containers per hour per mold.

69. (Previously Presented) The process of claim 56 wherein said blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of at least about 1200 containers per hour per mold.

70. (Previously Presented) The process of claim 56 wherein said blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of at least about 1500 containers per hour per mold.

71. (Withdrawn) A container formed by the process of claim 56.

72. (Currently Amended) In a two stage process of injection stretch blow molding polypropylene, the process comprising the steps of:

(a) providing a chemical composition comprising polypropylene and a nucleating agent, said chemical composition having a melt flow index in the range of about 13-35 grams/10 minutes according to ASTM D 1238, said nucleating agent being selected from the group consisting of dibenzylidene sorbitols compounds;

(b) injecting said chemical composition into a mold through a gate in operable connection with said mold, wherein said gate has a diameter of from about

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1.5 mm to about 3.8 mm and said chemical composition is injected into said mold at a fill rate in the range of about 5-22 grams of chemical composition per second;

(c) forming said chemical composition into a preform article, said preform article having a closed end connected to a side wall, said preform side wall having a thickness ~~in the range of from about [[2-4]]~~ 1.5 mm to about 3.5 mm;

(d) removing said preform article from said mold and allowing said preform article to cool to ambient temperature;

(e) subsequently reheating said preform article to an elevated temperature; and

(f) placing the reheated preform article into a mold of a stretch blow mold apparatus and stretch blow molding said reheated preform article to form a container,

wherein said container has at least one side wall having a side wall thickness, wherein the percent haze to thickness ratio of said container side wall is less than about 0.4 percent haze/ mil.

73-74. (Canceled)

75. (Previously Presented) The process of claim 72 wherein said nucleating agent comprises sodium 1,3-O-2,4-bis(4-methylbenzylidene) sorbitol and derivatives thereof.

76. (Previously Presented) The process of claim 72 wherein said nucleating agent comprises a bis(3,4-dialkylbenzylidene) sorbitol acetal.

77. (Previously Presented) The process of claim 72 wherein said nucleating agent comprises 1,3-O-2,4-bis(3,4-dimethylbenzylidene) sorbitol.

78. (Previously Presented) The process of claim 72 wherein said haze/thickness ratio of said container is less than about 0.3 percent haze/ mil.

79. (Previously Presented) The process of claim 72 wherein said haze/thickness ratio of said container is less than about 0.2 percent haze/ mil.

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80. (Previously Presented) The process of claim 72 wherein said percent haze of said side wall of said container is less than about 6%.

81. (Previously Presented) The process of claim 72 wherein said container is about 10-20 mils in side wall thickness.

82. (Previously Presented) The process of claim 72 wherein said stretch blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of greater than about 900 containers per hour per mold.

83. (Previously Presented) The process of claim 72 wherein said blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of at least about 1200 containers per hour per mold.

84. (Previously Presented) The process of claim 72 wherein said blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of at least about 1500 containers per hour per mold.

85. (Withdrawn) A container formed by the process of claim 72.

86. (Previously Presented) The process of claim 72 wherein said preform side wall thickness of step (c) is about 2 mm.

87. (Previously Presented) The process of claim 72 wherein said preform side wall thickness of step (c) is about 3 mm.

88. (Canceled)

89. (Currently Amended) A process comprising the steps of:

(a) providing a chemical composition comprising polypropylene, said chemical composition having an MFI in the range of between about 13 and about 35 grams/10 minutes according to ASTM D 1238, said chemical composition further comprising a nucleating agent, said nucleating agent comprising at least in part a dimethyl dibenzylidene sorbitol compound;

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(b) injecting said chemical composition into a mold through a gate in operable connection with said mold, wherein said gate has a diameter of from about 1.5 mm to about 3.8 mm and said chemical composition is injected into said mold at a fill rate of between about 5 and about 22 grams of chemical composition per second;

(c) forming said chemical composition into a preform article, said preform article having a wall thickness of between from about [[2]] 1.5 mm [[and]] to about [[4]] 3.5 mm; and

(d) removing said preform article from said mold and allowing said preform article to cool to ambient temperature; and

(e) subsequently reheating said preform article to an elevated temperature; and

(f) placing the reheated preform article into a mold of a stretch blow mold apparatus and stretch blow molding said reheated preform article to form a container,

wherein said container has at least one side wall having a side wall thickness, wherein the percent haze to thickness ratio of said container side wall is less than about 0.4 percent haze/ mil.

90. (Canceled)

91. (Previously Presented) The process of claim [[90]] 89 wherein said haze/thickness ratio of said container is less than about 0.3 percent haze/ mil.

92. (Previously Presented) The process of claim [[90]] 89 wherein said haze/thickness ratio of said container is less than about 0.2 percent haze/ mil.

93. (Previously Presented) The process of claim [[90]] 89 wherein said percent haze of said side wall of said container is less than about 6%.

94. (Previously Presented) The process of claim [[90]] 89 wherein said container is about 10-20 mils in side wall thickness.

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95. (Previously Presented) The process of claim 89 wherein said stretch blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of greater than about 900 containers per hour per mold.

96. (Previously Presented) The process of claim 89 wherein said blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of at least about 1200 containers per hour per mold.

97. (Previously Presented) The process of claim 89 wherein said blow molding step (f) is repeated successively in a manufacturing operation at a rate of container production of at least about 1500 containers per hour per mold.

98. (Withdrawn) A container formed by the process of claim 89.

99. (New) In a two stage process of injection stretch blow molding polypropylene to form a container, wherein a first stage comprises forming a preform article and a second stage comprises reheating and blow molding the preform article to form a container, the process comprising the steps of:

(a) providing a chemical composition comprising polypropylene, said chemical composition having a melt flow index in the range of about 6 to about 50 grams/10 minutes, according to ASTM D 1238;

(b) injecting said chemical composition into a mold through a gate in operable connection with said mold, wherein said gate has a diameter of from about 1.5 mm to about 3.8 mm and said chemical composition is injected into said mold at a fill rate of about 5 to about 22 grams of chemical composition per second;

(c) forming said chemical composition into a preform article, said preform article having a closed end connected to a side wall, said side wall having a thickness of from 1.5 mm to 3.5 mm;

(d) removing said preform article from said mold and allowing said preform article to cool to ambient temperature;

(e) reheating said preform article to an elevated temperature; and

(f) placing the reheated preform article into a mold of a stretch blow mold apparatus and stretch blow molding said preform article to form a container,

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wherein said container has a container side wall having a thickness and a percent haze, and wherein a ratio of the percent haze of the container side wall to the thickness of the container side wall is less than about 0.4 percent haze per mil of thickness.

100. (New) The process of claim 99, wherein the ratio of the percent haze of the container side wall to the thickness of the container side wall is less than about 0.3 percent haze per mil of thickness.

101. (New) The process of claim 99, wherein the ratio of the percent haze of the container side wall to the thickness of the container side wall is less than about 0.2 percent haze per mil of thickness.

102. (New) The process of claim 99, wherein said container has a container side wall and said container side wall has a thickness of about 10 mils to about 20 mils.

103. (New) The process of claim 99, wherein said chemical composition further comprises a nucleating agent.